



Safety

PROCESS SAFETY MANAGEMENT (PSM) OF HIGHLY HAZARDOUS CHEMICALS

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The criteria in this standard are the Air Force's minimum safety, fire protection, and occupational health requirements for all areas where processes which involve highly hazardous chemical operations, as outlined in Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) Standard 1910.119, *Process Safety Management of Highly Hazardous Chemicals*, are conducted. Major commands (MAJCOM), direct reporting units (DRU), and field operating agencies (FOA) may supplement this standard when additional or more stringent safety, fire prevention, and health criteria are required. Refer to Air Force Instruction (AFI) 91-301 (formerly designated Air Force Regulation [AFR 127-12]), *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, for instructions on processing supplements or variances. Report conflicts in guidance between this standard, federal standards, or other Air Force directives through MAJCOM, DRU, or FOA ground safety offices to Headquarters Air Force Safety Agency, Operations Safety Division (HQ AFSA/SEGO), 9700 Avenue G, Suite 222, Kirtland AFB NM 87117-5670.

This standard applies to all US Air Force organizations, including US Air Force Reserve and Air National Guard on Federal Service. It is intended to minimize or eliminate safety, fire, and health hazards to personnel and property. This standard implements 29 CFR 1910.119. **NOTE:** AFRs are now Air Force Policy Directives (AFPD), AFIs, and (or) AF Pamphlets (AFPAM). In addition, AF Manuals (AFM) are changing to AFMAN. AFOSH 127-series standards are changing to 91-series (when revised) and 161-series standards will become 48-series. When known, the number of each AFPD, AFI, AFPAM, AFMAN, and AFOSH standard is provided along with a reference to the previous number.

1. Purpose. This Air Force Standard implements the requirements for 29 CFR 1910.119 for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. This standard ensures appropriate attention and emphasis are given to OSHA requirements and provides guidance on implementation. It ensures adequate information is gathered for highly hazardous chemical operations, process hazard analyses are performed, and an appropriate PSM program is in place.

1.1. Application:

1.1.1. This standard applies to all processes which involve highly hazardous chemical operations as outlined in 29 CFR 1910.119. The criteria outlined in 29 CFR 1910.119 will be used in its entirety for program implementation and application unless specified otherwise by this standard.

1.1.2. This standard applies to all of the chemicals listed in 29 CFR 1910.119, Appendix A, *List of Highly Hazardous Chemicals, Toxics, and Reactives (Mandatory)*, whether the chemical is in a mixture or a by-product of a chemical process and (or) reaction. This standard also applies to the explosives and pyrotechnics as defined in 29 CFR 1910.109, *Explosives and Blasting Agents*, paragraphs (a)(3) and (10) respectively, and as discussed in 29 CFR 1910.109(k). Chemicals of equivalent hazard potential used within the Air Force, but not identified in 29 CFR 1910.119, Appendix A, will be considered under the requirements of this standard.

1.2 Exception. For purposes of this standard, similar processes in separate locations and (or) geographic areas (i.e. geographically separated buildings) will not be considered a single process as long as the separation distance is sufficient to prohibit interaction and the processes are not physically interconnected.

2. Responsibilities.

2.1. Air Staff. All staff elements will ensure process policies involving PSM-covered highly hazardous chemicals are consistent with the spirit and intent of this standard.

2.2. Air Force Chief of Safety (HQ AF/SE). The Air Force Chief of Safety will establish safety program policy for the PSM program.

2.3. Air Force Safety Agency (HQ AFSA). The HQ Air Force Safety Agency will:

2.3.1. Establish standards for the PSM program for the implementation of 29 CFR 1910.119.

2.3.2. Provide professional advice and guidance applicable to the PSM program.

2.4. Major Commands (MAJCOM), Direct Reporting Units (DRU), and Field Operating Agencies (FOAs). The Safety (SE) management headquarters' staffs will provide program oversight and supplements, as necessary.

2.5. Installation Ground Safety (SEG). With assistance from the ground safety staff, the Chief of Ground Safety will:

2.5.1. Serve as the focal point for the implementation of this standard and perform the associated safety discipline-related responsibilities.

2.5.2. Coordinate the installation PSM program and ensure the provisions of this standard are followed at their installation.

2.5.3. Assess their operations *within 150 days after receipt of this standard* and advise through channels to HQ AFSA/SEGO how many and the type of operations they have that fall under the provisions of this standard.

2.5.4. Lead the installation Process Safety Management Program (PSMP) Team consisting of staff members from the installation Ground Safety, Bioenvironmental Engineering, Logistics office of primary responsibility (OPR) for the Hazardous Material Pharmacy (HMP) Program, Civil Engineering Environmental, Fire Protection, and Readiness Flights, and all highly hazardous chemical users as defined in 29 CFR 1910.119.

2.5.5. Ensure that copies or location reference source of the documentation required by the OSHA PSM standard are maintained at an appropriate location for review by an OSHA inspector or higher headquarters upon request.

NOTE: Organizations with specialized safety staffing may assign the above responsibilities to another safety staff discipline other than SEG.

2.6. Installation Bioenvironmental Engineering (BE):

2.6.1. Provides technical advice and support to users of the chemicals covered under the requirements of this AFOSH Standard as outlined in 29 CFR 1910.119(d)(1).

2.6.2. Assists with determining the range of possible health effects of failure of controls as outlined in 29 CFR 1910(e)(3).

2.6.3. Reviews the process hazard analyses (PHA) to determine the technical accuracy of the health effects and the technical viability of the recommendations for health control measures.

2.6.4. Ensures trade secrets are maintained as outlined in 29 CFR 1910.119(p).

2.6.5. Provides permanent membership to the installation PSMP Team.

2.7. Installation Logistics Group (LG):

2.7.1. As the OPR for the HMP, provides advice and information on chemicals present on the installation to the PSMP Team.

2.7.2. Provides permanent membership to the installation PSMP Team.

2.8. Installation Civil Engineering:

2.8.1. Installation Civil Engineering Environmental (CEV):
2.8.1.1. Provides advice and information regarding corollary and associated environmental requirements primarily derived from the Environmental Protection Agency (EPA) Chemical Accidental Release Prevention (CARP) program requirements.

2.8.1.2. Provides permanent membership to the installation PSMP Team.

2.8.2. Fire Protection (CEF):

2.8.2.1. Provides technical advice on the fire hazards of the chemicals covered under the requirements of this AFOSH Standard as outlined in 29 CFR 1910.119(d)(1).

2.8.2.2. Assists with determining the range of possible fire effects of failure of controls as outlined in 29 CFR 1910.119(e)(3).

2.8.2.3. Reviews the process hazard analyses to determine the technical accuracy of the fire effects and the technical viability of the recommendations for fire control measures.

2.8.3. Readiness Flight (CEX):

2.8.3.1. Ensures that the emergency action plan for processes covered by this standard meet the requirements of 29 CFR 1910.119(n).

2.8.3.2. Provides technical advice regarding emergency response, containment, and cleanup to the process hazard analysis team.

2.8.3.3. Reviews the process hazard analyses to determine the technical accuracy of emergency response plans and to include these considerations in the emergency action plans.

2.9. Users of Highly Hazardous Chemicals

2.9.1. Have the responsibility to follow the criteria of 29 CFR 1910.119.

2.9.2. Identify any chemicals thought to be hazardous that are not listed in Appendix A of 29 CFR 1910.119 to the PSMP Team for determining whether they should be considered under the PSM program.

2.9.3. Review the written employee participation plan developed by the PSMP team.

2.9.4. Attain the process safety information as outlined in 29 CFR 1910.119(d).

NOTES:

1. The provisions of 29 CFR 1910.119(j) must be brought to the attention of and followed by equipment maintainers when performing any required maintenance, repair, or replacement of equipment used for any process that falls under this AFOSH Standard..

2. Supervisors of user organizations will ensure that the requirements for the specific job tasks, as outlined in 29 CFR 1910.119(g), are conducted and documented for initial and refresher job task training.
 3. Training required under this standard is the normal job skills training and (or) operator equipment training. Required training does not include PSM knowledge training.
- 2.10. The Installation Process Safety Management (PSMP) Team. This team, consisting of staff members from the installation Ground Safety, Bioenvironmental Engineering, Logistics OPR for the HMP Program, Civil Engineering Environmental, Fire Protection and Readiness Flights, and all highly hazardous chemical users, as defined in 29 CFR 1910.119, will:
- 2.10.1. Develop and coordinate the installation plan for employee participation.
 - 2.10.2. Meet as necessary to ensure that the specific requirements of the PSM AFOSH Standard are met.
 - 2.10.3. Track the status of discrepancies found during the audits and report the progress to the installation AFOSH Council every 12 months.
 - 2.10.4. Participate in the pre-startup safety review in conjunction with the process operator (29 CFR 1910.119[i]).
 - 2.10.5. Assess whether or not any chemical identified by the user as possibly hazardous should be included under the PSM program.
 - 2.10.6. Will conduct compliance audits each year using the checklist in the OSHA Compliance Program letter 2-2.45,

Appendix A, *PSM Audit Guidelines*. These audits may be done by a single member or members of the PSMP Team.

NOTES:

1. The PSMP team is not necessarily the same team that performs the process PHA in 29 CFR 1910.119(e). These PHAs may be performed by internal staff members, through a contract arrangement, or a combination of both.
2. The PSMP team leadership organization may be any one of the permanent members, at the discretion of the Installation and (or) Wing Commander.

3. Associated and Corollary Guidance Documents:

3.1. Where practical, the hazard analyses required by AFI 32-4002, *Hazardous Material Emergency Planning and Response Compliance*, should be combined with those done to comply with PSM requirements, as well as any industrial process analyses conducted under Section 313 of the Emergency Planning and Community Right-To-Know-Act (EPCRA).

3.2. Some of the PSM program requirements are addressed directly or indirectly by existing Air Force publications. Thus, a review of the following may reveal some of the PSM requirements have been partially or fully completed. If that is the case, centralization of the completed tasks into one reference source (project document) should satisfy the requirements.

3.3. For cross-reference of Air Force publications and other publications to the PSM requirements, see Table 1.

Table 1. Cross-Reference of Air Force Publications and Other Publications to PSM Requirements.

29 CFR 1910.119	Air Force Publication	Other Publications
Paragraph a	None	CARP; Part 68.10, <i>Applicability</i>
Paragraph b	None	CARP; Part 68.3, <i>Definitions</i>
Paragraph c	AFI 91-301, <i>Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program</i>	-----
Paragraph d(1)	AFOSH Standard 161-21, <i>Hazard Communication</i>	CARP; Part 68.26, <i>Process Safety Information</i>
Paragraph e	None	CARP, Part 68.24, <i>Process Hazard Analysis</i>
Paragraph f	None	CARP; Part 68.28, <i>Standard Operating Procedures</i>
Paragraph g	AFOSH Standard 161-21	CARP: Part 68.30, <i>Training</i>
Paragraph h	AFPAM 91-210, <i>Contract Safety</i>	-----
Paragraph i	None	CARP; Part 68.34, <i>Pre-Start Up Review</i>

Paragraph j	None	CARP; Part 68.34, <i>Maintenance</i>
Paragraph k	AFOSH Standard 91-5, <i>Welding, Cutting, and Brazing</i>	-----
Paragraph l	AFOSH Standard 127-68, <i>Chemical Safety</i>	CARP; Part 68.36, <i>Management of Change</i>
Paragraph m	AFI 91-204, <i>Investigating and Reporting US Air Force Mishaps</i>	CARP; Part 68-40, <i>Accident Investigation</i>
Paragraph n	AFI 32-4002, <i>Hazardous Material Emergency Planning and Response Compliance</i>	CARP: Part 68-45, <i>Emergency Response</i>
Paragraph o	AFI 32-7045, <i>Environmental Compliance Assessment and Management Program (ECAMP)</i>	CARP: Part 68-45, <i>Safety Audits</i>
Paragraph p	AFI 161-21	-----

NOTE: The PSM standard and the EPA Chemical Accidental Release Prevention (CARP) program have some similar process requirements. The CARP program is outlined in 40 CFR, Part 68, *Chemical Accident Prevention Provisions*.

ORIN L. GODSEY, Brig General, USAF
Chief of Safety

GLOSSARY OF REFERENCES, ABBREVIATIONS, ACRONYMS, AND TERMS**References**

Air Force Instruction (AFI) 32-4002, *Hazardous Material Emergency Planning and Response*.
AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)*.
AFI 91-204, *Investigating and Reporting US Air Force Mishaps*.
AFI 91-301 (formerly designated AFR 127-12), *The Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*.
Air Force Occupational Safety and Health (AFOSH) Standard 91-5, *Welding, Cutting, and Brazing*.
AFOSH Standard 127-68, *Chemical Safety*.
AFOSH Standard 161-21, *Hazard Communication*.
Air Force Pamphlet (AFPAM) 91-210, *Contract Safety*.
Emergency Planning and Community Right-To-Know-Act (EPCRA).
Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.109, *Explosives and Blasting Agents*.
OSHA 29 CFR 1910.119, *Process Safety Management of Highly Hazardous Chemicals*.
OSHA Standard 1910.119, Appendix A, *List of Highly Hazardous Chemicals, Toxics, and Reactives (Mandatory)*.
OSHA Standard 40 CFR Part 68, *Chemical Accident Prevention Provisions (CARP)*:
40 CFR Part 68.3, *CARP Definitions*.
40 CFR Part 68.10, *CARP Applicability*.
40 CFR Part 68.24, *CARP Process Hazard Analysis*.
40 CFR Part 68.26, *CARP Process Safety Information*.
40 CFR Part 68.28, *CARP Standard Operating Procedures*.
40 CFR Part 68.30, *CARP Training*.
40 CFR Part 68.34, *CARP Pre-Start Up Review*.
40 CFR Part 68.34, *CARP Maintenance*.
40 CFR Part 68.36, *CARP Management of Change*.
40 CFR Part 68.40, *CARP Accident Investigation*.
40 CFR Part 68.45, *CARP Emergency Response*.
OSHA Compliance Program Letter 2-2.45, Appendix A, *PSM Audit Guidelines*.

Abbreviations and Acronyms

AFI—Air Force Instruction (new designation)
AFM—Air Force Manual (old designation)
AFMAN—Air Force Manual (new designation)
AFOSH—Air Force Occupational Safety and Health
AFPAM—Air Force Pamphlet (new designation)
AFPD—Air Force Policy Directive (new designation)
AFR—Air Force Regulation (obsolete designation)
AFSA—Air Force Safety Agency
CARP—Chemical Accidental Release Prevention
CFR—Code of Federal Regulations
DRU—Direct Reporting Unit
ECAMP—Environmental Compliance Assessment and Management Program
EPA—Environmental Protection Agency
EPCRA—Emergency Planning and Community Right-To-Know-Act
FOA—Field Operating Agency
HMP—Hazardous Material Pharmacy
HQ—Headquarters
MAJCOM—Major Command
OPR—Office of Primary Responsibility
OSHA—Occupational Safety and Health Administration
PHA—Process Hazard Analyses
PSMP—Process Safety Management Program
PSM—Process Safety Management

Terms

Shall. —Indicates a mandatory requirement.

Will. —Is also used to indicate a mandatory requirement and to addition is used to express a declaration of intent, probability, or determination.

Should. —Indicates a preferred method of accomplishment.

May.— Indicates an acceptable or satisfactory method of accomplishment.

Users of Highly Hazardous Chemicals. —Refers not to the individual, but the organization.